

SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Mercury

Other means of identification

Product No.: 2567, 2564, 1280

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name:	Avantor Performance Materials, LLC
Address:	100 Matsonford Rd, Suite 200 Radnor, PA 19087
Telephone:	Customer Service: 855-282-6867
Contact Person:	Product Information Compliance
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Inhalation - vapor)	Category 2
Toxic to reproduction	Category 1B

Unknown toxicity - Health

Acute toxicity, dermal	100 %
Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 1
Chronic hazards to the aquatic environment	Category 1

Unknown toxicity - Environment

Acute hazards to the aquatic environment	0 %
--	-----

Chronic hazards to the aquatic environment 100 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: May damage fertility or the unborn child.
Fatal if inhaled.
Very toxic to aquatic life with long lasting effects.
Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. [In case of inadequate ventilation] wear respiratory protection. Avoid release to the environment. Wash hands thoroughly after handling.

Response: IF exposed or concerned: Get medical advice/attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

Storage: Store locked up. Store in a well-ventilated place. Keep container tightly closed.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Substances

Chemical Identity	CAS number	Content in percent (%)*
MERCURY	7439-97-6	90 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion:	Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Inhalation:	Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms:	Fatal if inhaled. Irritating to eyes, respiratory system and skin.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically. Symptoms may be delayed.
-------------------	---

5. Fire-fighting measures

General Fire Hazards:	In case of fire and/or explosion do not breathe fumes.
------------------------------	--

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	None known.

Specific hazards arising from the chemical:	Fire may produce irritating, corrosive and/or toxic gases.
--	--

Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Keep unauthorized personnel away. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
---	--

Methods and material for containment and cleaning up:

Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures:

Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions:

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:

Use personal protective equipment as required. Do not breathe mist or vapor. Do not taste or swallow. Do not eat, drink or smoke when using the product. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment. Avoid contact with eyes. Avoid contact with skin. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Conditions for safe storage, including any incompatibilities:

Keep in a cool, well-ventilated place. Store in a dry place. Store locked up. Keep container tightly closed.

8. Exposure controls/personal protection

Control Parameters
Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
MERCURY - as Hg	SKIN_DES	Can be absorbed through the skin.	US. ACGIH Threshold Limit Values (03 2013)
	TWA	0.025 mg/m3	US. ACGIH Threshold Limit Values (03 2013)
MERCURY - Vapor. - as Hg	REL	0.05 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	SKIN_DES	Can be absorbed through the skin.	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	TWA	0.05 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	SKIN_FINAL	Can be absorbed through the skin.	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
MERCURY	Ceiling	0.1 mg/m3	US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)
MERCURY - Particulate.	ST ESL	Health 0.25 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL	Health 0.025 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
MERCURY (Total inorganic mercury: Sampling time: Prior to shift.)	20 µg/g (Creatinine in urine)	ACGIH BEI (03 2014)

Appropriate Engineering Controls

No data available.

Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eyeface protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Skin Protection	
Hand Protection:	Chemical resistant gloves
Other:	Wear suitable protective clothing.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator.
Hygiene measures:	Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Do not eat, drink or smoke when using the product. Wash contaminated clothing before reuse.

9. Physical and chemical properties

Appearance

Physical state:	Liquid
Form:	Liquid
Color:	Silver
Odor:	Odorless
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	-38.87 - -38.48 °C
Initial boiling point and boiling range:	356.73 °C
Flash Point:	Not applicable
Evaporation rate:	4 (butyl acetate=1)
Flammability (solid, gas):	Noncombustible Liquid
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	0.000267 kPa (25 °C)
Vapor density:	7.0 (Air=1)
Density:	13.55 g/ml (20 °C)
Relative density:	13.534 (25 °C)
Solubility(ies)	
Solubility in water:	Insoluble
Solubility (other):	pentane: 2.7 mg/l nitric acid: Soluble
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

Other information

Molecular weight: 200.59 g/mol (Hg)

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Heat, sparks, flames. Contact with incompatible materials.
Incompatible Materials:	Strong oxidizing agents. Acetylene. Ammonia. Ethylene Oxide Chlorinated compounds. Metals. Strong oxidizers
Hazardous Decomposition Products:	Toxic metal fumes may form when heated to decomposition.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	Fatal if inhaled.
Skin Contact:	Causes skin irritation.
Eye contact:	Causes eye irritation.
Ingestion:	Harmful if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral Product:	LD 50 (Rat): 26 - 105 mg/kg
Dermal Product:	No data available.
Inhalation Product:	No data available.

Repeated dose toxicity Product:	No data available.
--	--------------------

Skin Corrosion/Irritation Product:	Causes skin irritation.
---	-------------------------

Serious Eye Damage/Eye Irritation Product:	Causes eye irritation.
---	------------------------

Respiratory or Skin Sensitization Product:	Not a skin sensitizer.
---	------------------------

Carcinogenicity

Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive toxicity

Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

MERCURY
LC 50 (Striped bass (*Morone saxatilis*), 96 h): 0.09 mg/l
EC 50 (Orangethroat darter (*Etheostoma spectabile*), 4 d): 0.0211 mg/l
LC 50 (White perch (*Morone americana*), 96 h): 0.22 mg/l
LC 50 (Carp (*Cyprinus carpio*), 96 h): 0.94 mg/l

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

MERCURY
LC 50 (Cockle (*Cerastoderma edule*), 48 h): 3.3 - 10 mg/l
LC 50 (Common shrimp, sand shrimp (*Crangon crangon*), 48 h): 3.3 - 10 mg/l

LC 50 (Calanoid copepod (*Acartia tonsa*), 48 h): 0.017 mg/l
LC 50 (Indian prawn (*Penaeus indicus*), 48 h): 0.27 mg/l
EC 50 (*Daphnia magna*, 48 h): 1.5 - 11.3 µg/l

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

MERCURY
LOAEL (*Pimephales promelas*, 60 d): 2.01 µg/l
NOAEL (*Danio rerio*, 14 d): 1 - 8 µg/l
NOAEL (*Pimephales promelas*, 60 d): 1.02 µg/l

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

MERCURY
NOAEL (*Daphnia magna*, 21 d): 1.7 - 10 µg/l
LOAEL (*Daphnia magna*, 21 d): 3.4 - 18 µg/l
LC 50 (*Viviparus bengalensis*, 7 d): 80 - 150 µg/l
NOAEL (*Viviparus bengalensis*, 7 d): 20 - 100 µg/l

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: There are no data on the degradability of this product.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: The product is water soluble and may spread in water systems.

Other adverse effects: Very toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal instructions:

Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number:	UN 2809
UN Proper Shipping Name:	Mercury
Transport Hazard Class(es)	
Class:	8
Label(s):	8, 6.1
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

IMDG

UN Number:	UN 2809
UN Proper Shipping Name:	MERCURY
Transport Hazard Class(es)	
Class:	8
Label(s):	8, 6.1
EmS No.:	F-A, S-B
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

IATA

UN Number:	UN 2809
Proper Shipping Name:	Mercury
Transport Hazard Class(es):	
Class:	8
Label(s):	8, 6.1
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
TSCA Flag - S

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

<u>Chemical Identity</u>	<u>Reportable quantity</u>
MERCURY	1 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Acute toxicity (any route of exposure)
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

<u>Chemical Identity</u>	<u>Reportable quantity</u>
MERCURY	1 lbs.

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
MERCURY	10000 lbs.

SARA 313 (TRI Reporting)

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
MERCURY	10 lbs.	10 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations
US. California Proposition 65

WARNING: "This product can expose you to chemicals including Mercury, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov."

US. New Jersey Worker and Community Right-to-Know Act

<u>Chemical Identity</u>
MERCURY

US. Massachusetts RTK - Substance List

<u>Chemical Identity</u>
MERCURY

US. Pennsylvania RTK - Hazardous Substances

<u>Chemical Identity</u>
MERCURY

US. Rhode Island RTK

<u>Chemical Identity</u>
MERCURY

International regulations
Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

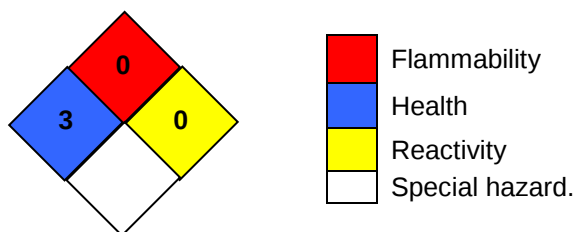
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16. Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 09-12-2018

Revision Information: Not relevant.

Version #: 1.2

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

Further Information: No data available.

Disclaimer:

The information provided in this Safety Data Sheet (SDS) was prepared based on data believed to be accurate as of the date of this SDS. TO THE GREATEST EXTENT PERMITTED BY LAW, AVANTOR PERFORMANCE MATERIALS ("AVANTOR") EXPRESSLY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES REGARDING THE INFORMATION CONTAINED HEREIN INCLUDING, WITHOUT LIMITATION, AS TO ACCURACY, COMPLETENESS, FITNESS FOR PURPOSE OR USE, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY AND STABILITY. This SDS is intended as a guide to the appropriate use, handling, storage and disposal of the product to which it relates by properly trained personnel, and is not intended to be comprehensive. Users of Avantor's products are advised to perform their own tests and to exercise their own judgment to determine the safety, suitability and appropriate use, handling, storage and disposal of each product and product combination for their own purposes and uses. TO THE GREATEST EXTENT PERMITTED BY LAW, AVANTOR DISCLAIMS LIABILITY FOR, AND BY USING AVANTOR'S PRODUCTS PURCHASER AGREES THAT UNDER NO CIRCUMSTANCES SHALL AVANTOR BE LIABLE FOR, SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY TYPE OR KIND, INCLUDING WITHOUT LIMITATION, FOR LOSS OF PROFITS, REPUTATIONAL DAMAGE, PRODUCT RECALL OR BUSINESS INTERRUPTION.